

Development of left-handed composite materials and negative refracting photonic crystals with subwavelength focusing

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We review the studies conducted in our group concerning electromagnetic properties of metamaterials and photonic crystals with negative effective index of refraction. In particular, we demonstrate the true left handed behavior of a 2D composite metamaterial by analyzing the electric and magnetic response of the material components systematically. The negative refraction, subwavelength focusing, and flat lens phenomena using 2D dielectric photonic crystals are also presented.